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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/049,270	06/27/2002	Hui Zhong	Q68281	9445
23373	7590	09/09/2005	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			DINH, TUAN T	
			ART UNIT	PAPER NUMBER
			2841	

DATE MAILED: 09/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/049,270

Applicant(s)

ZHONG ET AL.

Examiner

Tuan T. Dinh

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9 and 31-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9 and 36 is/are allowed.
- 6) ☒ Claim(s) 31, 33 and 35 is/are rejected.
- 7) ☒ Claim(s) 32 and 34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 08/26/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

The request filed on 08/26/05 for a Request for Continued Examination (RCE) under 37 CFR 1.114 based on parent Application No. 10/049270 is acceptable and a RCE has been established. An action on the RCE follows.

Because the applicant is filled the Petition to withdrawn from the issue, so that the examiner is now hereby treated the Amendment filed on 01/31/05 as a current pending claims.

Claim Objections

1. Claims 31, 33 are objected to because of the following informalities:

Claim 31, line 6, change "P-atom containing epoxy resins" to - - P-atom containing epoxy resin - -.

Claim 31, line 7, after "both terminal" please, insert - - of the P-atom containing epoxy resin - - for proper reading.

Claim 33, line 3, change "an d in repetition" to - - and in repetition - -. For correct typo.

Claim 33, line 7, "acid residue in one terminal and an epoxy group in the other terminal" should be change to - - acid residue in one terminal of the P-atom containing epoxy resin and an epoxy group in the other terminal of the P-atom containing epoxy resin - - for proper reading.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 31, 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed (U.S. Patent 4,211,603) in view of Kenji et al. (JP 05-39345) submitted by applicant.

As to claim 31, Reed discloses a multilayered printed circuit board as shown in figures 1-4 comprising:

a conductor circuit (12) and a resin insulating layer (22) serially formed on a substrate (16) in alternate fashion and in repetition; and

a solder resist layer (46) formed as an outermost layer, see figure 4.

Reed does not disclose said solder resist layer (46) containing a P-atom containing epoxy resin, the P-atom containing epoxy resin having bivalent phosphoric acid residue, and having epoxy group in both terminals of the P-atom containing epoxy resin.

Kenji et al. teaches a phosphorus containing epoxy resin as shown in formulas 1-2.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a solder resist composition containing a P-atom

containing epoxy resin as taught by Kenji et al. to modify the solder resist of Reed for the purpose of providing a heat resistance suitable on the surface of the PCB.

As to claim 33, Reed discloses all of the limitation of the claimed invention, except for a P-atom containing epoxy resin having monovalent phosphoric acid residue in one terminal of the P-atom containing epoxy resin, and an epoxy group in the other terminal of the P-atom containing epoxy.

Kenji et al. teaches a phosphorus containing epoxy resin as shown in formulas 1-2.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a solder resist composition containing a P-atom containing epoxy resin as taught by Kenji et al. to modify the solder resist of Reed for the purpose of providing a heat resistance suitable on the surface of the PCB.

4. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reed ('603) in view of Kenji et al. (JP 05-39345), and further in view of Miyamura et al. ('378) as in the record.

As to claim 35, Reed and Kenji et al. disclose all of the limitation of the claimed invention, except for the solder resist contains at least one selected from the group consisting of a silicon compound of an AL Si, and Magnesium compounds.

Miyamura et al. shows a solder resist containing a silica or alumina, column 5, lines 39-43.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a solder resist composition containing a P-atom containing epoxy resin as taught by Miyamura et al. to modify the solder resist of Reed and Kenji for the purpose of providing a heat resistance, and surface hardness suitable on the surface of the PCB.

Allowable Subject Matter

5. Claims 32, and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 9 and 26 are allowed.

The following is an examiner's statement of reasons for allowance: the references cited disclose a multilayered PCB comprising a conductor circuit, a resin insulating layer, a solder resist layer, and some other claim elements. However, they do not disclose or render obvious in combination of the PCB having the solder resist having formulas (4) and (5).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 571-272-1929. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kammie Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Tuan Dinh', with a long, sweeping horizontal line extending to the right.

Tuan Dinh
September 02, 2005.